

REMARKS

Status of the claims:

Claims 1, 2, and 4-10 are pending and ready for further action on the merits. Reconsideration is respectfully requested in light of the following remarks.

Rejections under 35 USC §103

Claims 1, 2, and 7-10 have been rejected under 35 USC §103(a) as being unpatentable over Iwahara '732 (US Patent No. 4,904,732) in view of Kimura '050 (US Patent No. 5,319,050).

This rejection is traversed for the following reasons.

Present Invention

The present invention, as recited in claim 1, relates to a room temperature curable composition comprising

(A) 100 parts by weight of a saturated hydrocarbon polymer having a number average molecular weight in the range of 500 to 50,000 and bearing at least two hydrolyzable silyl groups at an end of the backbone and/or an end of a side chain per molecule,

(B) an organic compound having at least one C=O group in a molecule, in such an amount as to give 0.001 to 1 mol of the C=O group per 100 parts by weight of polymer (A), and

(C) an organic compound having at least one NH_2 group in a molecule, in such an amount as to give 0.001 to 1 mol of the NH_2 group per 100 parts by weight of polymer (A), components (B) and (C) being selected such that the $\text{C}=\text{O}$ and NH_2 groups in the respective components are reactive with each other

(D) a paraffinic process oil.

Disclosure of Iwahara '732

Iwahara '732 discloses an isobutylene polymer having at least one silicon-containing group cross-linkable by the formation of a siloxane bond. The isobutylene polymer is curable at ordinary temperatures and is said to exhibit excellent weatherability, water-resistance, heat-resistance, and is said to have excellent electric isolation and gas impermeability.

Iwahara '732 fails to disclose a paraffinic process oil.

Disclosure of Kimura '050

Kimura '050 discloses a condensation-curing type curable composition which comprises a diorganopolysiloxane or polyoxyalkylene blocked by a hydrolyzable silyl group at both terminal ends of its molecular chain as a base polymer, in which a carbonyl group-containing organic compound and an amino group-containing organic compound are compounded. The composition is

said to be capable of forming water through dehydration condensation between the carbonyl and amino groups, simultaneously with curing of the composition by moisture in air. The formation of water is said to offer marked improvements in fast-curing properties and in depth curing properties.

Kimura '050 fails to disclose a paraffinic process oil.

Removal of the Rejection over Iwahara '732 in view of Kimura '050

Applicants respectfully request reconsideration of the 37 CFR §1.132 declaration that was filed with the reply of July 2, 2003.

Regarding this declaration that Examiner stated:

An affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Where there are deviations from the closest prior art, they must 1) be explained and 2) shown unlikely to influence the outcome of the comparison. In re Finley, 81 USPQ 383 Ex Parte Armstrong, 126 USPQ 281; In re Widmer, 147 USPQ 518; In re Magerlein, 202 USPQ 473. In the alternative, "Applicants may compare the claimed invention with prior art that is more closely related to the invention that the prior art relied upon by the examiner." IN re Holladay, 584 F.2d 384, 199 USPQ 516 (CCPA 1978).

Applicants do not dispute the above statements and do believe that the instant invention should be compared to the closest prior art. However, Applicants respectfully submit that the "closest prior art" referred to in the above statements refers to the closest prior art that exists. In this regard, the MPEP at §716.02(e) (VIII edition, revised February 2003) states:

Although evidence of unexpected results must compare the claimed invention with the closest prior art, applicant is not required to compare the claimed invention with subject matter that does not exist in the prior art. In re Geiger, 815 F.2d 686, 689, 2 USPQ2d 1276, 1279 (Fed. Cir. 1987) (Newman, J., concurring) (Evidence rebutted prima facie case by comparing claimed invention with the most relevant prior art. Note that the majority held the Office failed to establish a prima facie case of obviousness.); In re Chapman, 357 F.2d 418, 148 USPQ 711 (CCPA 1966) (Requiring applicant to compare claimed invention with polymer suggested by the combination of references relied upon in the rejection of the claimed invention under 35 U.S.C. 103 "would be requiring comparison of the results of the invention with the results of the invention." 357 F.2d at 422, 148 USPQ at 714.).

From this section of the MPEP it should be apparent that Applicants are not required to make a compound or composition that does not exist in the prior art, even if that compound or composition is suggested. Applicants are only required to make a composition or compound that already exists in the prior art for a comparison. In the instant case, Applicants have compared the instant invention to the closest disclosed prior art and have shown the unexpectedly superior properties of the instant invention relative to the closest disclosed example in the prior

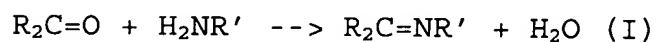
art. Accordingly, Applicants submit that the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

As was mentioned in the reply of July 2, 2003, one of the objects of the instant invention is to provide a room temperature fast curable composition of the condensation curing type which is improved in curability, especially in fast curing at room temperature and curing to depth.

It has been found by the inventors of the instant application that blending (A) a saturated hydrocarbon polymer having a number average molecular weight in the range of 500 to 50,000 and bearing at least two hydrolyzable silyl groups at an end of the backbone and/or an end of a side chain per molecule, with (B) an organic compound having at least one C=O group and (C) an NH₂ group-containing component wherein (B) and (C) are selected so as to be reactive with each other, leads to a room temperature fast curable composition of the condensation curing type which is improved in both fast curing at room temperature and curing to depth.

The inventors found that in the composition comprising the saturated hydrocarbon polymer (A), organic compound (B), and organic compound (C), a crosslinking reaction takes place between a hydrolyzable silyl group at an end of the backbone and/or a side chain of the saturated hydrocarbon polymer (A)

with air-borne moisture, and in parallel therewith, a dehydration condensation reaction takes place between compound (B) and compound (C) according to the following scheme (I)



wherein R and R' are organic groups. These reactions allow the crosslinking reaction to proceed with the water generated in depth within the composition as well. As a result, the inventive composition is improved in fast curing and also drastically improved in deep curing. Additionally, the composition has good stain resistance and durability.

This invention overcame the problems of water separation and a decline of workability due to increased thixotropy as found in the prior art compositions wherein water is added as a deep curing agent.

Moreover, the use of a paraffinic process oil can give excellent heat resistance without injuring the fast and deep curing, as is shown in the attached 37 CFR §1.132 declaration which was previously filed on July 2, 2003.

Iwahara '732 fails to disclose or suggest the fast curing of the present invention even though the base polymer of Iwahara '732 is consistent with that of the instant invention. One cannot deduce from Iwahara '732 that fast curing can be attained

by using components (B) and (C) of the invention in combination with the saturated hydrocarbon polymer. Moreover, Iwahara '732 also fails to disclose or suggest the use of a paraffinic process oil as is claimed in the instant invention. Although Iwahara '732 does disclose the use of polybutene, etc., the use of polybutene imparts unexpectedly inferior heat resistance than the paraffinic process oil used in the instant invention. Please see the attached 37 CFR §1.132 declaration which was filed initially on July 2, 2003. Please note that Applicants have tested the instant composition against the composition containing this polybutene containing composition. Please see the Table on page 4 of the Declaration for the superior effects of the instant invention after heat treatment.

The deficiencies present in Iwahara '732 are not made up by Kimura '050. Kimura '050 discloses a condensation-curing composition. Although Kimura '050 appears to disclose the components (B) and (C) of the instant invention, the base polymer in Kimura '050 is much different from the base polymers disclosed in the instant invention.

In the present invention, the fast curing is attained by combining the components (B) and (C) to the base polymer of the instant invention. Kimura '050 does not remotely disclose this effect because Kimura fails to disclose the same polymer as used and claimed in the instant invention.

Moreover, Kimura '050 fails to disclose or suggest the use of a paraffinic process oil. For these reasons, Applicants submit that the rejection is inapposite. Withdrawal of the rejection is warranted and respectfully requested.

Accordingly, Applicants respectfully request reconsideration by the Examiner in light of the above comments.

With the above remarks and amendments, it is believed that the claims, as they now stand, define patentable subject matter such that a passage of the instant invention to allowance is warranted. A Notice to that effect is earnestly solicited.


If any questions remain regarding the above matters, please contact Applicant's representative, T. Benjamin Schroeder (Reg. No. 50,990), in the Washington metropolitan area at the phone number listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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By



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Attachment: A copy of Declaration filed under 37 CFR § 1.132 on
July 2, 2003



IN THE U.S. PATENT AND TRADEMARK OFFICE

APPLICANT: Takafumi SAKAMOTO et al.
SERIAL NO.: 10/067,856
FILED: February 8, 2002
FOR: Room Temperature Curable Compositions
GROUP: 1712
EXAMINER: ZIMMER, MARC S

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D E C L A R A T I O N

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir,

I, Takafumi SAKAMOTO, resident of c/o
Silicone-Electronics Materials Research Center,
Shin-Etsu Chemical Co., Ltd., 1-10, Oaza Hitomi,
Matsuida-machi, Usui-gun, Gunma-ken, Japan, do hereby
declare that:

1. I was graduated from Faculty of Synthetic
Chemistry of Technical Department in Gunma University,
Japan in March 1990. Since April 1990, I have been
employed by Shin-Etsu Chemical Co., Ltd., the assignee

of the above-identified application. I have been engaged in research and development relating to room temperature vulcanizable organopolysiloxane compounds in the laboratory of the Company.

2. I am one of the named inventors of the above-identified application and hence, am familiar with the subject matter disclosed in said application.

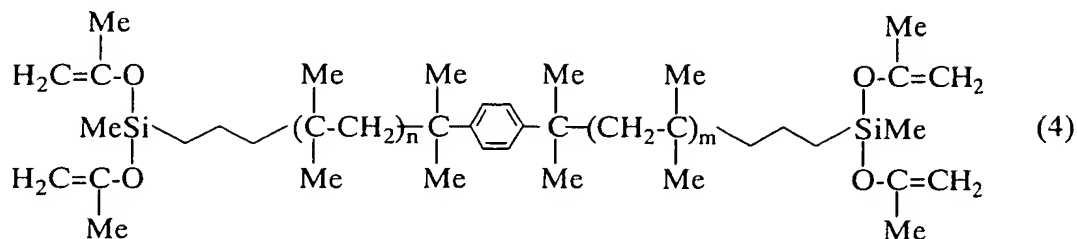
3. In order to show the feature of the present invention, I conducted the following experiments.

[Experiments]

Invention

A curable composition was prepared by mixing under anhydrous conditions 150 g of a mixture of a saturated hydrocarbon polymer of formula (4) ($M_n = 5,800$, $M_w/M_n = 1.21$) and a paraffinic process oil (trade name Diana Process PS-32 by Idemitsu Industries, Ltd.) as a hydrocarbon plasticizer in a weight ratio of 2:1, 2.90 g (0.05 mol) of acetone, 11.05 g (0.05 mol) of γ -aminopropyltriethoxysilane, 1.0 g of tetramethylguanidylpropyltrimethoxysilane, 75 g of colloidal light calcium carbonate (trade name MT-100 by Maruo Calcium K.K.), 75 g of heavy calcium carbonate (trade name Softon 1500 by Shiraishi Calcium K.K.), and

10 g of fumed silica (trade name Aerosil R-972 by Nippon Aerosil Co., Ltd.).



Rubber properties of the composition were examined in the same manner as in Example of the present specification. In this case, the properties of the sample which was heat treated at 150° C for 7 days after curing were also measured. The results are shown in Table 1.

The composition was worked into a sheet of 2 mm thick, which was allowed to stand in an atmosphere of 23° C and RH 50% for 7 days after curing. The resulting rubber elastomer was examined for physical properties (hardness, elongation and tensile strength) according to JIS K-6249. Further, the rubber elastomer was examined for physical properties (hardness, elongation and tensile strength) after heat treatment at 150° C for 7 days.

Comparison

The above procedure of Invention was repeated except that a polybutene (Nisseki Polybutene LV-50 by Nippon Petrochemicals Co., Ltd.) was used instead of the paraffinic process oil. The results are shown in Table 1.

Table 1

		Invention	Comparison
After curing	Hardness, Duro-A	20	19
	Elongation at break, %	600	620
	Tensile strength, MPa	1.4	1.3
After heat treatment	Hardness, Duro-A	21	30
	Elongation at break, %	500	200
	Tensile strength, MPa	1.5	0.3

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated this *16th* day of *June* , 2003

Takafumi Sakamoto